



Oklahoma Agricultural Experiment Station

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THE VALUE OF COTTON IMPROVEMENT

One of the most important problems before the Oklahoma farmer today is the improvement of the cotton plant. No other line of work that will tend to improve farm conditions offers the possibilities that are open to the cotton producers who will take advantage of the opportunities that lie within this plant for improvement. But few cultivated plants are as susceptible of improvement through selection and breeding as is the cotton plant and yet it has received less attention perhaps during the many years it has been grown than almost any of our cultivated crops. The average farmer pays more attention to the selection of his watermelon seed than he does that of his cotton seed. Such a state of affairs ought not to be. Statistics show that the yield of lint cotton for the United States is only about 190 pounds per acre. This is just about enough to pay for cost of production under present conditions and yet it has been shown time after time that highly bred cotton, under proper conditions of soil and climate, is capable of producing as high as 1000 pounds or more of lint cotton per acre. Something is surely wrong when such a wide variation exists between the average yield and that of a few fields where selection has been practiced.

If the farmer is to realize as he should on his cotton crop, the gross income per acre must be increased. This may be done in two ways: (1) By increasing the market price of raw cotton; or (2) By increasing the yield per acre. With cotton averaging about ten cents per pound, the first method cannot be depended upon to give permanent relief since there are factors to deal with that the farmer cannot influence to any great extent. The latter method, however, is fully within the control of the farmer and any system that will work to-

ward the desired end should be adopted by the Oklahoma farmer at once. Smaller acreage and larger yields of better cotton should be the object sought, and in most cases it can be obtained.

There are several ways in which the yield of cotton can be increased quite materially: by the use of manures; by the use of the very best machinery and tools for cultivation; by improving the mechanical condition of the soil through better tillage; and last and most important of all, by the continued selection of seed from plants that show themselves superior to their kind in those characteristics that it is desirable to perpetuate in the cotton plant.

The selection of cotton seed is a problem that each individual cotton planter must work out for himself and not until each planter does adopt some definite method of seed selection can we ever hope for anything like permanent improvement in cotton production, either in yield or quality of lint. It will not answer the purpose for the farmer to purchase well bred seed each year, or every few years, for this course usually results in the seed "running out" through neglect by the time the plant has adjusted itself to its new environments, and new seed has to be purchased and the operation repeated. This process will never bring the yield or quality of cotton up to the desired standard. Each farmer must secure for himself seed of the variety that is best adapted to his particular soil, climate, and conditions, and with this as the foundation stock, selection can be made according to some definite plan and the crop improved thereby each year.

The Experiment Station cannot do this work for the farmer. All it can do is to determine fundamental facts that may be applied to the general improvement of the plant. The individual planter must apply these principles to his own case. The stations of the southern states have given a great deal of attention to the cotton plant. They have tested and classified varieties, tested all kinds of fertilizers, introduced new varieties and made as endless number of crosses. Perhaps the most important thing they have done as far as the planter is concerned is the classification of types and the in-

formation they have given on the qualifications that go to make up a good plant in each type. The study of the methods of combating cotton insects is another place where the stations have been of great service to the planter, but it devolves upon the farmer to make use of this information or it will be of no benefit to him. The mere fact of having knowledge of these things will be of no profit unless he learns to turn the knowledge to some advantage to himself.

Every farmer should have a seed breeding plat of his own so isolated from the general field that the possibilities of crossing would be reduced to the minimum. On this breeding plat, constant selection can be made and a higher standard of perfection reached each year. A person passing through a cotton field can readily see a great variation in the type of plants. This is true even in fields of highly bred cotton and it is due to this tendency towards variation that such rapid progress can be made in breeding. Two plants may grow side by side having equal opportunities and one yield two hundred fine bolls and the other but ten. It is the elimination of these unfavorable plants from a field that gives the farmer a chance to improve his crop and all such plants should be removed before the blossoming period when there will be a chance for the intermingling of pollen.

A great many Oklahoma farmers are contemplating the adoption of the breeding plat method of improvement but at the outset they are confronted with the difficulty of getting the selected seed ginned in such a way as to insure its being kept pure. It is the object of this circular to urge upon the ginner of the state the great advantage, not only to the farmers, but to themselves, of offering all assistance possible in this work. Seed selection cannot be made of much value to the planter unless he can be assured of being able to gin his selections in such a way as to keep them free from other seed. In many cases it has been impossible for the planter to get his own seed back from the gin. Under such conditions cotton breeding is impossible. The ginner levies tribute upon every pound of cotton that the farmer raises, hence increased yield and better quality is of great importance to him.

There are several ways in which ginnermen may be of service to planters in the effort they are making to breed up their cotton. It is possible for them to be of great assistance in the selection of proper varieties for planting, and in the securing of seed that is known to be reliable, at reasonable prices. After this preliminary work has been accomplished, the ginnermen should so arrange their machinery that selected cotton may be ginned without fear of mixing. The ginning of this material may be deferred until after the busy season, and it interfere in no way with the regular work of the gin.

There are on the market a number of excellent gins of small size, ranging from ten to thirty saws, that could be installed in the average gin at small cost and operated with the power already at hand: These gins are built for the purpose of ginning selected seed and are readily cleaned and easily handled. One of these small gins put in for the use of farmers would be a profitable investment for every ginner and would do more than any other one thing to encourage the cotton planter to take an interest in the improvement of his seed. The yield of cotton on the Oklahoma farm should be doubled in the next five years and in order to accomplish this the acreage must be decreased and every one in any way connected with the industry must do his share toward helping to better the conditions under which cotton is grown. It will be but a matter of a few years until the Mexican cottonboll weevil will have spread over all of the cotton growing sections of Oklahoma, and when this time comes it will be necessary to modify our system of cotton growing to some extent. The old slipshod ways will have to give way to more scientific methods if the growing of cotton is to be a profitable business. This year 90 per cent of the late cotton was destroyed by the weevil in the southern part of Indian Territory and this condition will prevail over all of Oklahoma in a very few years. Early maturing varieties and better culture are about the only remedies. These things pay whether we have weevil or not so let us begin to put them into practice at once.